SAS to SAS/SATA
Epica Expansion Chassis

User Manual

Revision 1.0

Table of Contents

Chapter 1 Introduction 3
1.1 Features 4
1.2 Technical Specifications 5
1.3 Unpacking the JBOD Expansion Chassis 6
1.4 Identifying Parts of the Expansion Chassis 7
1.4.1 Front View 7
1.4.2 Rear View 7
1.4.3 Expansion Drawer 8
1.5 Power Supply / Fan Module (PSFM) 9
1.5.1 PSFM Panel 9
1.5.2 Power Supply Module LED 10
1.5.3 Fans of PSFM 10
1.6 LCD Display Panel 11
1.6.1 LCD Panel LED 11
1.6.2 LCD Panel Function Buttons 12
1.6.3 Menu Diagram 13
1.7 Drive Carrier Module 14
1.7.1 Disk Drive Status Indicators 14
1.7.2 Drive Carrier Lock Indicator 15
Chapter 2 Installation of Expansion Chassis 16
2.1 Installing hard Drives 16
2.2 Setting the DIP Switch of JBOD Controller 18
Chapter 3 JBOD Firmware Upgrade 20

Chapter 1 Introduction

The Expansion Chassis

The EPICa JBOD Enclosure is a 19-inch 3U 16 bays rackmount JBOD unit. It features the latest SASII (6Gb/s) interface and designed to fit in with the environments which needed highly reliable and relentless data growth. The JBOD Enclosure is also a versatile SAS2 / SATA3 Disk Expansion system, ideal for high capacity and scalability storage in IT demands. Based on the 6G SAS technology, the JBOD Enclosure supporting the choice of SAS2 and SATA3 drive configurations to deliver the best cost-performance index with higher bandwidth.

1.1 Features

- **Modular architecture**

  Redundant hot-swappable components, power and cooling modules

  Easy-to-use and maintenance

- **Power Supply**

  Power Supply and cooling system contained in 1 module for efficient cooling

  500W power supplies to meet the future HDD power consumption

- **Enclosure**

  Hardware expansion slots keep you up-to-date on the latest technologies

  Incorporates a cableless design for maximum signal integrity

- **SES**

  Utilizes industry-standard SCSI Enclosure Services to monitor enclosure and disk environmental conditions

1.2 Technical Specifications

Form Factor	3U 19" rackmount chassis
Host Bus Interface	Two 4x mini SAS (6Gb/s)
Expansion Bus Interface	Two 4x mini SAS (6Gb/s)
Disk Bus Interface	6Gb/s SAS , 6Gb/s SATA
Backplane	6Gb/s SAS/SATA
# of Hot Swap Trays	16
Tray Lock	Yes, with Lock Indicator
Disk Status Indicator	Access LED and Fail LED
Enclosure Monitoring (SES)	In Band SES via SAS
# of PS/Fan Modules	2 x 500W with PFC
# of Fans per Module	2 (Multi-speed)
Power Status Indicator	Yes
Fan Status Indicator	Yes
Power Requirements	AC 90V ~ 264V Full Range 9A ~ 4.5A, 47Hz ~ 63Hz
Relative Humidity	10% ~ 85% Non-condensing
Operating Temperature	10°C ~ 40°C (50°F ~ 104°F)
Physical Dimension	590(L) x 482(W) x 131(H) mm
Weight (Without Disk)	24 Kg (without drives)

1.3 Unpacking the JBOD Expansion Chassis

The package contains the following items:

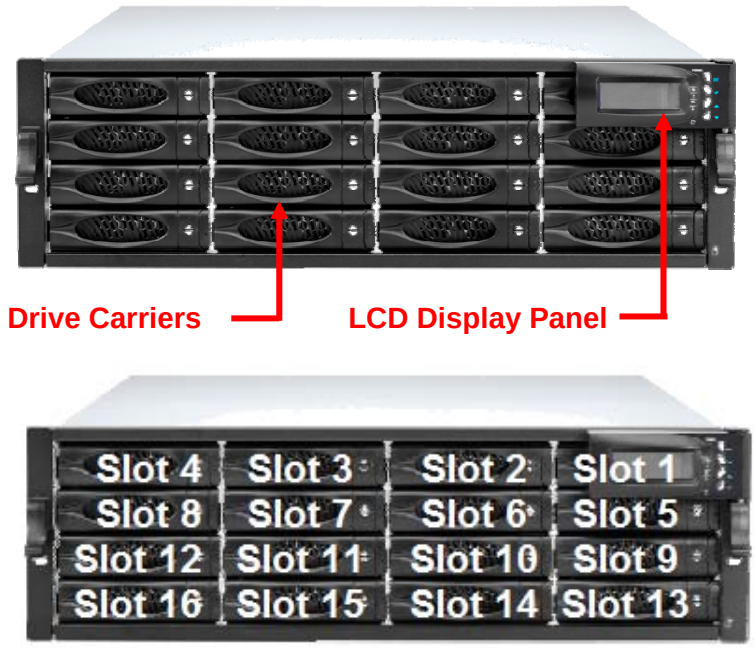
- JBOD Expansion Chassis
- Two power cords
- One serial cable (phone-jack to DB9)
- One external Mini SAS cable SFF-8088 to SFF-8088
- Installation Reference Guide
- Spare screws, etc.

If any of these items are missing or damaged, please contact your dealer or vendor for assistance.

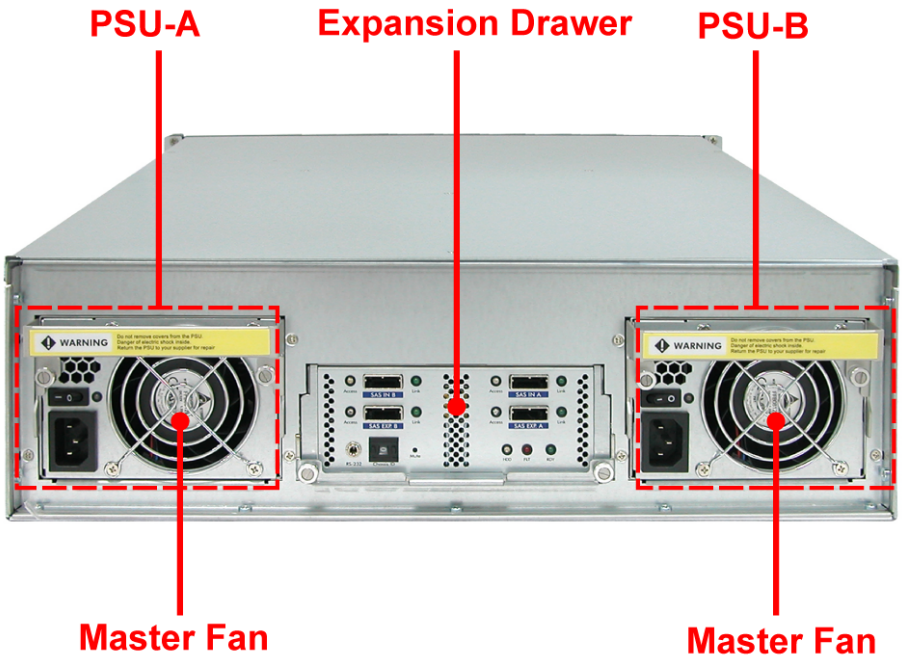
1.4 Identifying Parts of the Expansion Chassis

The illustrations below identify the various parts of the expansion chassis.

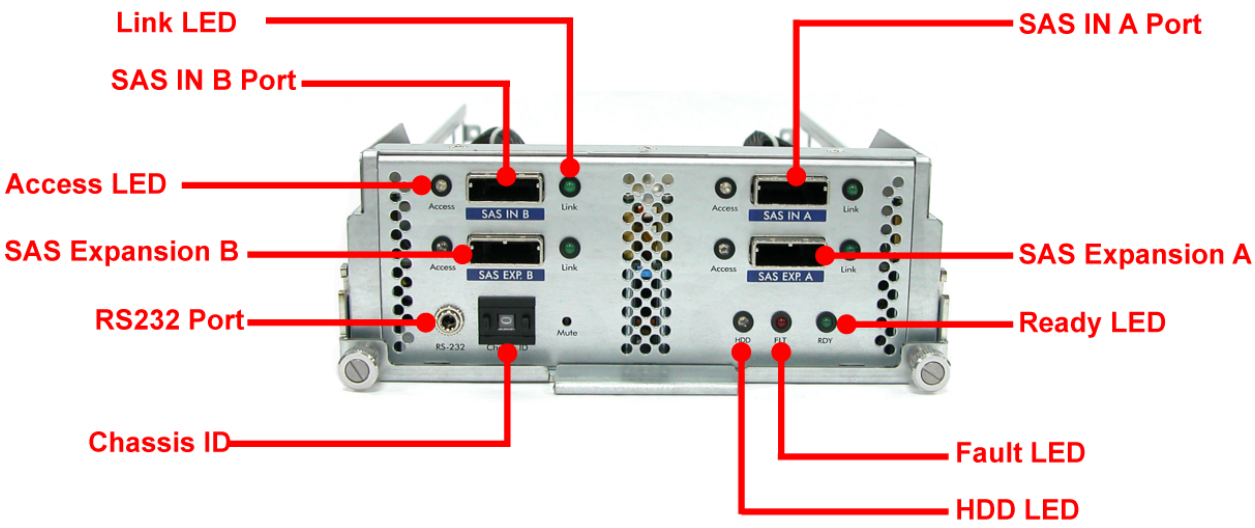
1.4.1 Front View



1.4.2 Rear View



1.4.3 Expansion Drawer



SAS IN Ports (A and B): SAS cable must be connected to these ports and to the SAS HBA, or other Expansion Chassis's SAS Expansion Port, if this chassis is connected in daisy-chain.

Link LED (SAS IN and SAS Exp): Green indicates SAS IN Port has connected or linked.

Access LED (SAS IN and SAS Exp): Blue indicates SAS IN Port is being accessed.

SAS Expansion Ports (A and B): SAS cable must be connected to these ports and to other SAS IN Port of other expansion chassis for daisy-chaining.

Chassis ID Dial: Used for assigning the Expansion Chassis ID Number. Press the upper or lower button to select (increase or decrease) the Chassis ID Number.

RS-232 Port: Used for upgrading the Firmware of JBOD controller in the Expansion Chassis.

Fault LED: Red (LED is on) indicates there is problem within the Expansion Chassis. If LED is off, the Expansion Chassis is in normal condition.

HDD LED: Blue indicates activity on the JBOD controller or disk drives.

Ready LED: Blinking green indicates Expansion Chassis is Powered On and Ready.

Mute: Use this button to silence the alarm beeper. If another failure event happens, the alarm beeper will sound again and this button can be pressed again to silence alarm.

1.5 Power Supply / Fan Module (PSFM)

Every JBOD contains **two 500W Power Supply / Fan Modules**. All PSFMs are inserted into the rear of the chassis.

1.5.1 PSFM Panel

WARNING
Do not remove covers from the PSU.
Danger of electric shock inside.
Return the PSU to your supplier for repair
Power On/Fail Indicator
Power On/Off Switch
AC Inlet Plug (Male)

The Power Supply/Fan Module panel has: Power On/Off Switch, the AC Inlet Plug, and a Power On/Fail Indicator showing the Power Status LED, indicating ready or fail.

Each fan within a PSFM is powered independently of the power supply within the same PSFM. So if the power supply of a PSFM fails, the fan associated with that PSFM will continue to operate and cool the enclosure.

1.5.2 Power Supply Module LED

When the power cord connected from main power source is inserted to the AC Power Inlet, the power status LED becomes RED. When the switch of the PSFM is turned on, the LED will turn GREEN. When the Power On/Fail LED is GREEN, the PSFM is functioning normally.

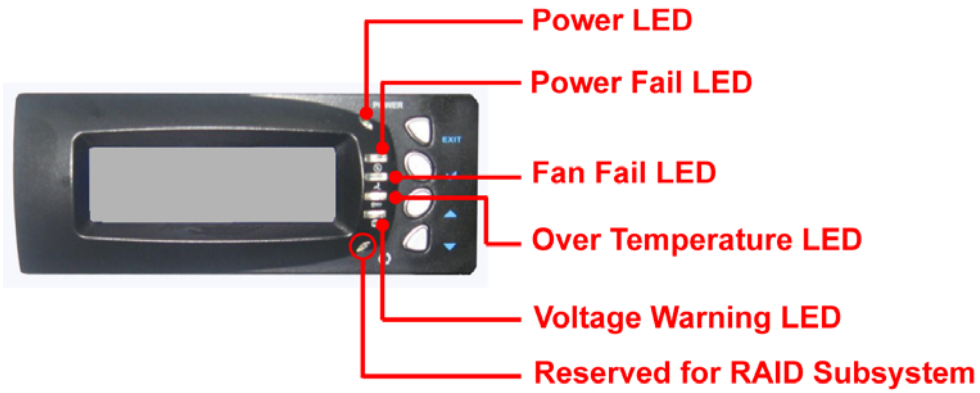
1.5.3 Fans of PSFM

Each PSFM has 2 fans: Master Fan and Slave Fan.
The Master Fan is located beside the PSFM panel.
The Slave Fan is located in the rear side.

NOTE: In the LCD display, Master Fan of Power Supply Unit A is shown as "MF/PSU-A", and Slave Fan of Power Supply Unit A is shown as "SF/PSU-A". Master Fan of Power Supply Unit B is "MF/PSU-B" and Slave Fan of Power Supply Unit B is "SF/PSU-B".

1.6 LCD Display Panel

1.6.1 LCD Panel LED

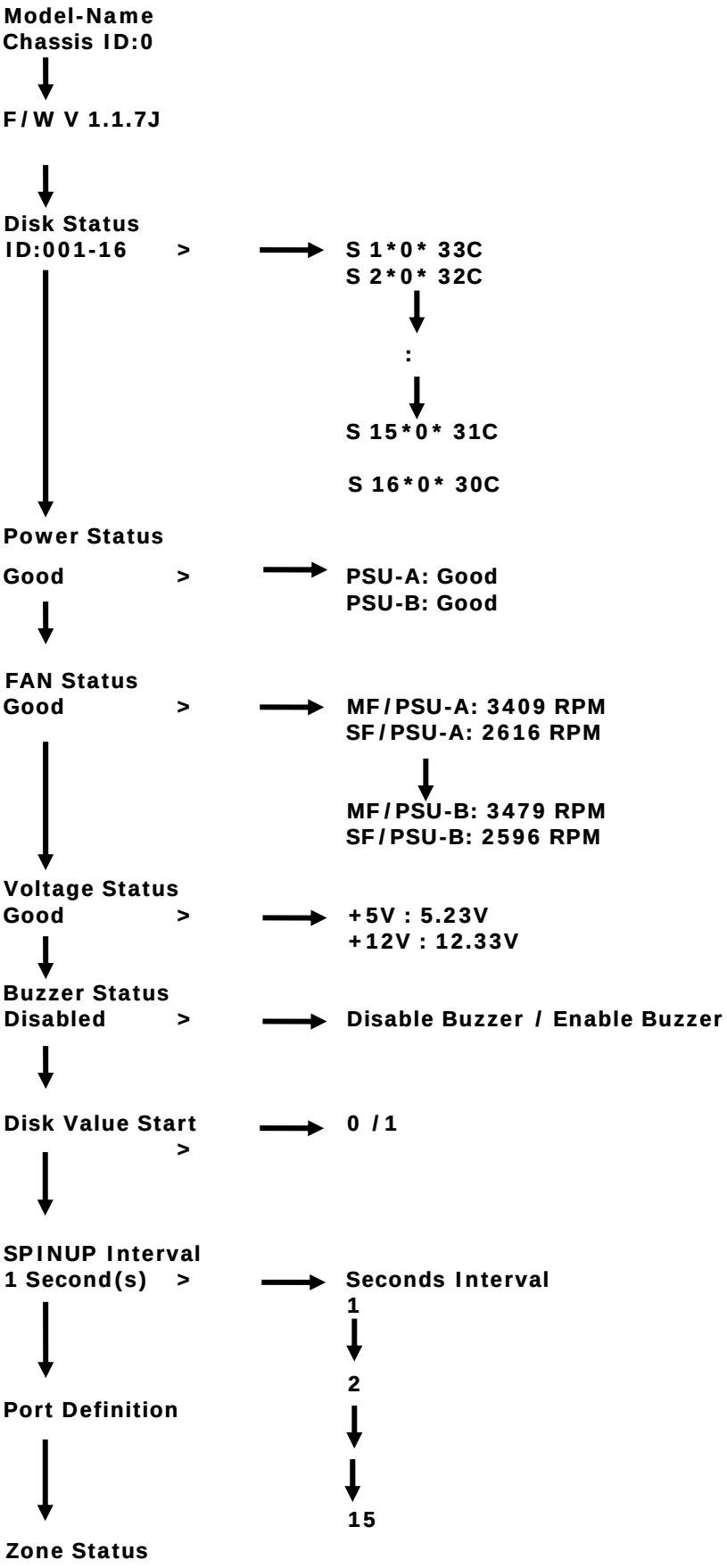


Parts	Function
Power LED	Green indicates power is ON.
Power Fail LED	If one of the redundant power supply unit fails, this LED will turn to RED and alarm will sound.
Fan Fail LED	Turn RED when fan 1 or 2 fails, or speed is lower than 3000 RPM for Master Fan and 2500 RPM for Slave Fan.
Over Temperature LED	If system temperature is over 70°C or disk temperatures exceed 55°C, the Over Temperature LED will turn RED and alarm will sound.
Voltage Warning LED	An alarm will sound if detected voltage in the controller is abnormal and LED will turn RED.

1.6.2 LCD Panel Function Buttons

Parts	Function
Up and Down Arrow buttons ▲ ▼	Use the Up or Down arrow keys to go through the information on the LCD screen. This is also used to move between each menu.
Select button ✔	This is used to enter the option you have selected.
Exit button EXIT	Press this button to return to the previous menu. NOTE: This button can also be used to silence the alarm beeper when in main menu. If you are in submenu and a failure event happens, press the EXIT button few times as necessary to go back to main menu, and press again to silence the alarm.

1.6.3 Menu Diagram



1.7 Drive Carrier Module

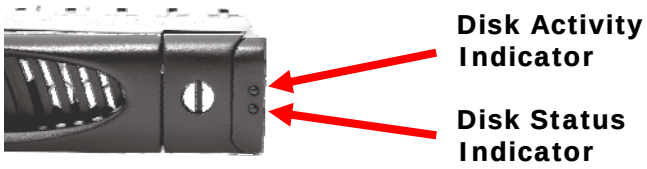
The Drive Carrier Module houses a 3.5 inch hard disk drive. It is designed for maximum airflow and incorporates a carrier locking mechanism to prevent unauthorized access to the HDD.

1.7.1 Disk Drive Status Indicators

Every Drive Carrier has 2 status indicator lights. One indicator light is used for Power On/Error. When this light is **GREEN** the power is on and everything is functioning normally. When the Power On/Error light is **RED**, then an error has happened that requires the user's attention.

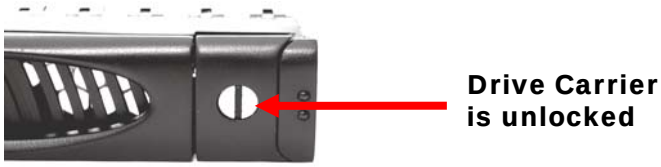
The other status indicator light is the hard disk drive access light. When the hard disk drive is being accessed, this light will flash **BLUE**.

In addition, both indicator lights are viewable within a 170° arc.

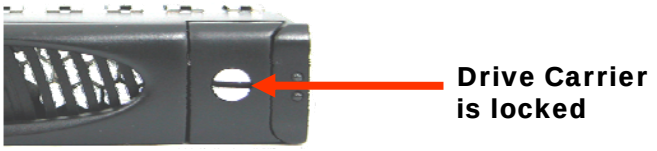


1.7.2 Drive Carrier Lock Indicator

Every Drive Carrier is lockable and is fitted with a lock indicator to indicate whether or not the carrier is locked into the chassis or not. Each carrier is also fitted with an ergonomic handle for easy carrier removal.



When the Lock Groove is vertical, then the Drive Carrier is unlocked.



When the Lock Groove is horizontal, this indicates that the Drive Carrier is locked.

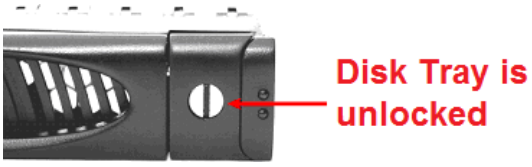
Lock and unlock the Drive Carriers by using a flat-head screw driver.

Chapter 2 Installation of Expansion Chassis

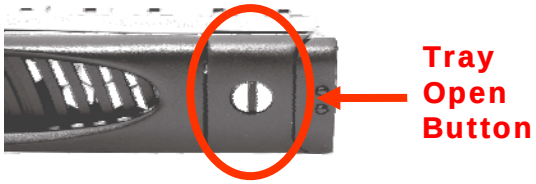
2.1 Installing hard Drives

The expansion chassis supports hot-swapping allowing you to install or replace a hard drive while the expansion chassis is running.

1. Unlock the Disk Trays using a flat-head screw driver by rotating the Lock Groove.

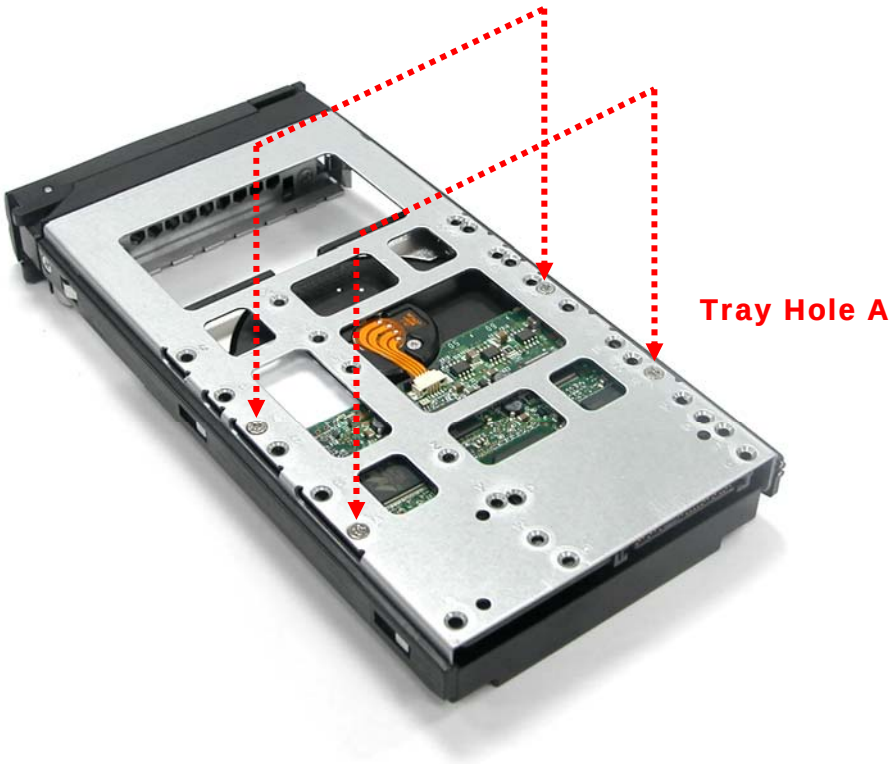


2. Press the Tray Open button and the Disk Tray handle will flip open.



3. Pull out an empty disk tray.

4. Place the hard drive in the disk tray. Turn the disk tray upside down. Align the four screw holes of the SAS disk drive in the four Hole A of the disk tray. To secure the disk drive into the disk tray, tighten four screws on these holes of the disk tray. Note in the picture below where the screws should be placed in the disk tray holes.



NOTE: All the disk tray holes are labelled accordingly.

5. Slide the tray into a slot.

6. Press the lever in until you hear the latch click into place. The HDD Fault LED will turn green when the subsystem is powered on and HDD is good.

7. If necessary, lock the Disk Tray by turning the Lock Groove.

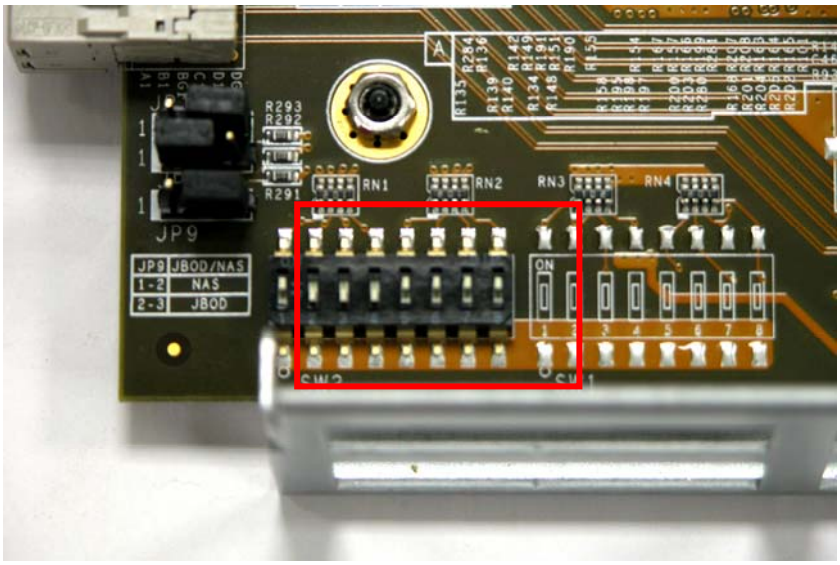
2.2 Setting the DIP Switch of JBOD Controller

NOTE: Depending on the SAS RAID card used in the Host Server, the DIP switch must be set according to the tables below.

DIP Switch Setting	SAS RAID Card	Note
0 0 1 1 0 0 0 0	Areca	
0 1 1 1 0 0 0 0	LSI (Internal ports)	

Steps:

1. Remove the Expansion Drawer from the enclosure.
2. Configure the DIP Switch in the JBOD controller to the appropriate setting. Note that 0 is “ON” and 1 is “OFF”.



Example settings (LSI):

SWITCH	1	2	3	4	5	6	7	8
DIP SWITCH SETTING	0	1	1	1	0	0	0	0
	ON	OFF	OFF	OFF	ON	ON	ON	ON

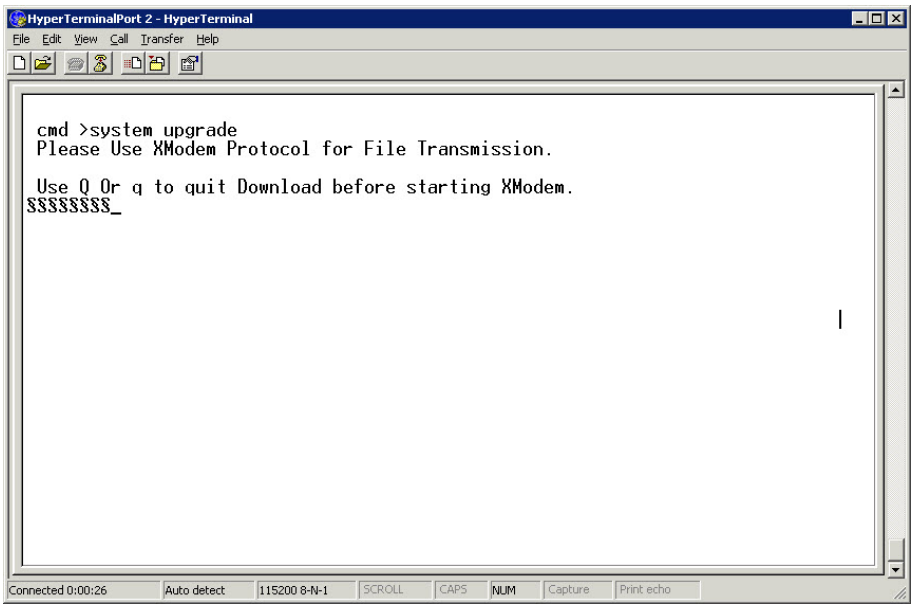
3. Reinsert the Expansion Drawer into the enclosure.

Chapter 3 JBOD Firmware Upgrade

IMPORTANT: Before upgrade the JBOD firmware, please shut down server first or make sure no array setting on the JBOD disks. The new Firmware will effective after JBOD power cycle.

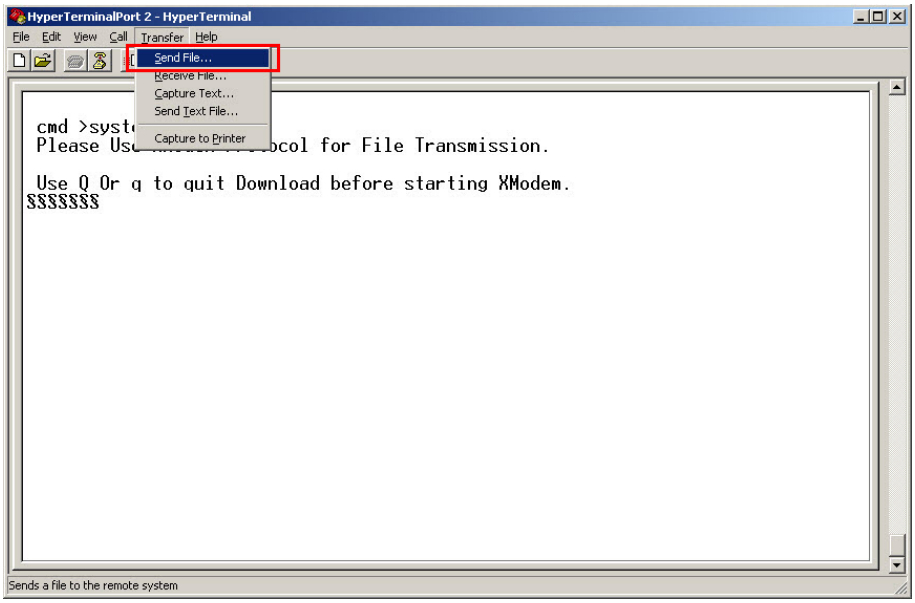
Steps:

1. Used RS-232 Port (Phone jack to DB9) link ProSun SAS JBOD, in command line please type “system upgrade”, than press “Enter”.

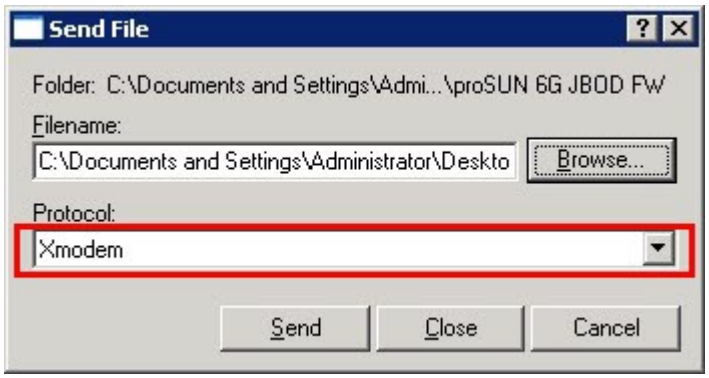


2. Select Transfer & Send File.

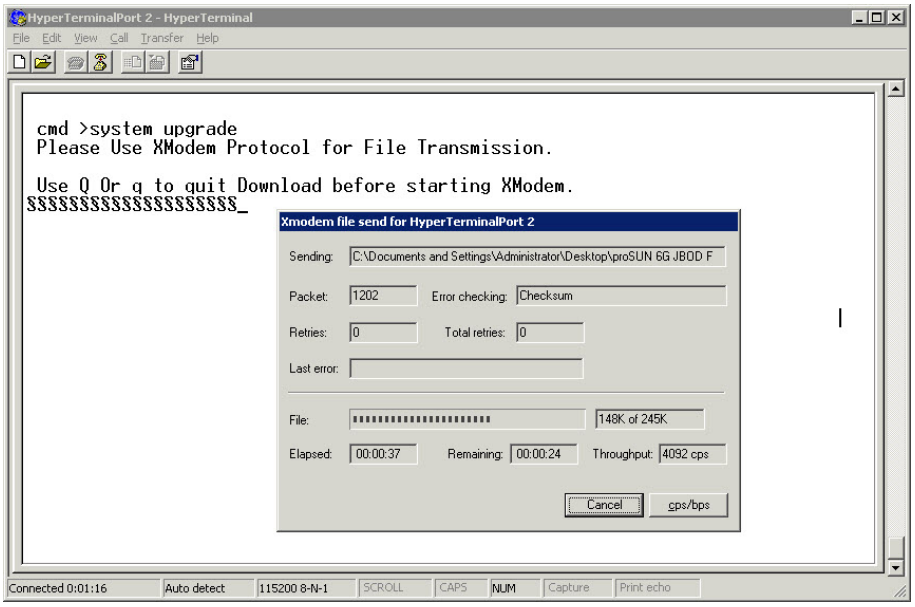
You must finish within 25 seconds

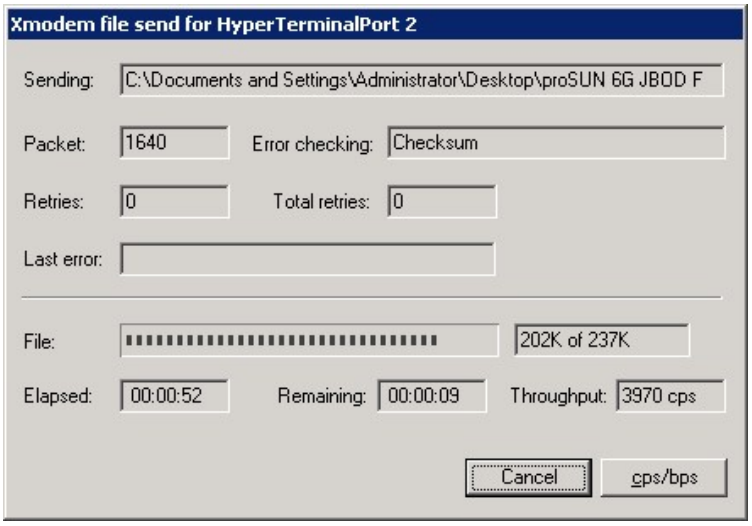

HyperTerminalPort 2 - HyperTerminal
File Edit View Call Transfer Help
Send File...
Receive File...
Capture Text...
Send Text File...
Capture to Printer
cmd >syst
Please Us ocol for File Transmission.
Use Q Or q to quit Download before starting XModem.
SSSSSSS
Sends a file to the remote system

3. Select your firmware file path, and select Xmodem in the communication protocol, and click transfer button.

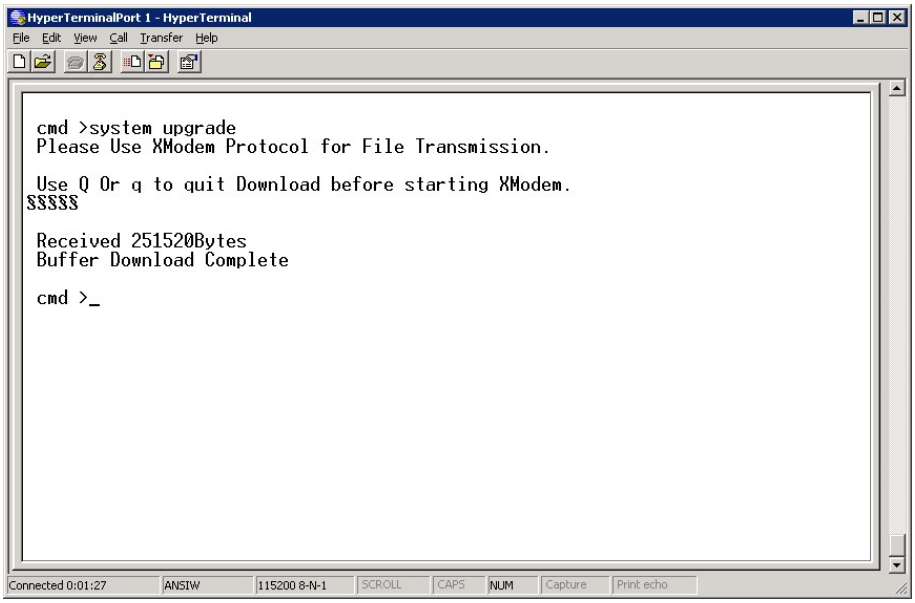


4. Wait for the transfer of file to complete.


HyperTerminalPort 2 - HyperTerminal
File Edit View Call Transfer Help
cmd >system upgrade
Please Use XModem Protocol for File Transmission.
Use Q Or q to quit Download before starting XModem.
CCCCCCCCCCCCCCCCCCCCC
Xmodem file send for HyperTerminalPort 2
Sending: C:\Documents and Settings\Administrator\Desktop\proSUN 6G JBOD F
Packet: 1202 Error checking: Checksum
Retries: 0 Total retries: 0
Last error:
File: 148K of 245K
Elapsed: 00:00:37 Remaining: 00:00:24 Throughput: 4092 cps
Cancel cps/bps
Connected 0:01:16 Auto detect 115200 8-N-1 SCROLL CAPS NUM Capture Print echo


Xmodem file send for HyperTerminalPort 2
Sending: C:\Documents and Settings\Administrator\Desktop\proSUN 6G JBOD F
Packet: 1640 Error checking: Checksum
Retries: 0 Total retries: 0
Last error:
File: 202K of 237K
Elapsed: 00:00:52 Remaining: 00:00:09 Throughput: 3970 cps
Cancel cps/bps

5. When the transfer and firmware update is complete, please power cycle the JBOD.



6. In command line, type “system info”, you can see the Expander firmware version.